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Fertilization of Plants. —Professor Hildebrand states that plants intermediate between the Papaveraceæ and the Fumariæ gave the greatest quantity of seeds when impregnated with the pollen of another individual of the same species; less when the pollen was taken from another flower of the same individual, and least when the impregnation took place within the flower itself. For *Eschscholtzia Californica*, the proportion of seeds in these three cases was as twenty-four to nine to six. Professor Fewzl says that he obtained abundance of seeds from two species of Abutilon by fecundation with pollen from other individuals, and that these operations are best performed between eight and nine A.M.—*Nature.*

In Fours.—In the September number of the Naturalist, G. F. M. mentions a *Trillium erythrocarpum* having its parts in fours. I have in my collection a similar specimen of *T. sessile*, found on the Salamonie. Also a specimen of *T. recurvatum* from the same locality, having its parts in twos; two leaves, sepals, petals and stigmas, and four stamens.

In the November number, C. J. S. speaks of a specimen of *Zea Mays*, where the floral organs have changed offices. I have often observed this freak in the fields; grains among the staminate flowers, and staminate flowers surmounting the rachis. I have also seen the entire fascicle of staminate flowers transformed into a tuft of little green blades.—R. H. Fisher, *Arba, Indiana.*

Androgynous Inflorescence.—Such inflorescences have been found on Zea, Populus, Fagus, Carpinus, *Betula humilis* and *B. alba*, as also on *Pinus nigra;* the small scale, considered as a part of the female blossom, developing itself into an anther.—*Nature.*

ZOÖLOGY.

Relation of the Physical to the Biological Sciences.—With reference to those branches of science in which we are more or less concerned with the phenomena of life, my own studies give me no right to address you. I regret this the less because my predecessor and my probable successor in the presidential chair are both of well-known eminence in this department. But I hope I may be permitted, as a physicist, and viewing the question from the physical side, to express to you my views as to the relation which the physical bear to the biological sciences.

No other physical science has been brought to such perfection as mechanics; and in mechanics we have long been familiar with the idea of the perfect generality of its laws, of their applicability to bodies organic as well as inorganic, living as well as dead. Thus in a railway collision, when a train is suddenly arrested the passengers are thrown forward, by virtue of the inertia of their bodies, precisely according to the laws which regulate the motion of dead matter. So trite has the idea become that the reference to it may seem childish; but from mechanics let us pass on to chemistry, and the case will be found by no means so clear. When chemists ceased to be content with the mere ultimate analysis of organic substances, and set themselves to study their proximate constituents, a great number of definite chemical compounds were obtained which could not be formed artificially. I do not know what may have been the usual opinion at that time among chemists as to their mode of formation. Probably it may have been imagined that chemical affinities were indeed concerned in their formation, but controlled and modified by an assumed vital force. But as the science progressed many of these organic substances were formed artificially, in some cases from other and perfectly distinct organic substances, in other cases actually from their elements. This statement must indeed be accepted with one qualification.

It was stated several years ago by M. Pasteur, and I believe the statement still remains true, that no substance, the solution of which possesses the property of rotating the plane of polarization of polarized light had been formed artificially from substances not possessing that property. Now several of the natural substances which are deemed to have been produced artificially are active, in the sense of rotating the plane of polarization, and therefore in these cases the inactive artificial substances cannot be absolutely identical with the natural ones. But the inactivity of the artificial substance is readily explained on the supposition that the artificial substance bears to the natural the same relation as racemic acid bears to tartaric; that it is, so to speak, a mixture of the natural substance with its image in a mirror. And when we remember by what a peculiar and troublesome process M. Pasteur succeeded in separating racemic acid into the right-handed and left-handed tartaric acids, it will be at once understood how easily the fact, if it be a fact, of the existence in the natural substance of the mixture of two substances, one right-handed and the other left-handed, but otherwise identical, may have escaped detection. This is a curious point, to the clearing up of which it is desirable that chemists should direct their attention. Waiving then the difference of activity or inactivity, which, as we have seen, admits of a simple physical explanation, though the correctness of that explanation remains to be investigated, we may say that at the present time a considerable number of what used to be regarded as essentially natural organic substances have been formed in the laboratory. That being the case it seems most reasonable to suppose that in the plant or animal from which those organic substances were obtained they were formed by the play of ordinary chemical affinity, not necessarily nor probably by the same series of reactions by which they were formed in the laboratory, where a high temperature is commonly employed, but still by chemical reactions of some kind, under the agency in many cases of light, an agency sometimes employed by the chemist in his laboratory. And since the boundary line between the natural substances which have, and those which have not, been formed artificially is one which, so far as we know, simply depends upon the amount of our knowledge, and is continually changing as new processes are discovered, we are led to extend the same reasoning to the various chemical substances of which organic structures are made up.

But do the laws of chemical affinity, to which, as I have endeavored to infer, living beings, whether vegetable or animal, are in absolute subjection, together with those of capillary attraction, of diffusion, etc., account for the formation of an organic structure, as distinguished from the elaboration of the chemical substances of which it is composed? No more, it seems to me, than the laws of motion account for the union of oxygen and hydrogen to form water, though the ponderable matter so uniting is subject to the laws of motion during the act of union just as well as before and after. In the various processes of crystallization, of precipitation, etc., which we witness in dead matter, I cannot see the faintest shadow of an approach to the formation of an organic structure, still less to the wonderful series of changes which are concerned in the growth and perpetuation of even the lowliest plant. Admitting to the full as highly probable, though not completely demonstrated, the applicability to living beings of the laws which have been ascertained with reference to dead matter, I feel constrained, at the same time, to admit the existence of a mysterious *something* lying beyond — a something *sui generis*, which I regard, not as balancing and suspending the ordinary physical laws, but as working with them and through them to the attainment of a designed end.

What this *something*, which we call life, may be, is a profound mystery. We know not how many links in the chain of secondary causation may yet remain behind; we know not how few. It would be presumptuous indeed to assume in any case that we had already reached the last link, and to charge with irreverence a fellow-worker who attempted to push his investigations yet one step farther back. On the other hand, if a thick darkness enshrouds all beyond, we have no right to assume it to be impossible that we should have reached even the last link of the chain; a stage where farther progress is unattainable, and we can only refer the highest law at which we stopped to the fiat of an Almighty Power. To assume the contrary as a matter of necessity, is practically to remove the first cause of all to an infinite distance from us. The boundary, however, between what is clearly known and what is veiled in impenetrable darkness is not ordinarily thus sharply defined. Between the two there lies a misty region, in which loom the ill-discerned forms of links of the chain which are yet beyond us. But the general principle is not affected thereby. Let us fearlessly trace the dependence of link on link as far as it may be given us to trace it, but let us take heed that in thus studying second causes we forget not the first cause, nor shut our eyes to the wonderful proofs of design which, in the study of organized beings especially, meet us at every turn. — *President Stokes' Address to the British Association.* SCIENTIFIC OPINION.

NOTES ON THE DUCKS FOUND ON THE COAST OF MASSACHUSETTS IN WINTER. — [A sporting friend in Salem sends the following interesting notes on our winter ducks, which, though differing somewhat from the published opinions of some writers, accord in the main with notes in previous lists of the birds of Massachusetts. While adding to our ornithological record many facts of special interest in respect to the distribution of our ducks in winter, they are also important as confirmatory in the main of what has been previously written]: On looking over the "List of New England Birds" I find some statements that are not in accordance with my own experience as a sportsman.

Mallard (*Anas boschas* Linn.). "Winter resident; not abundant." This is not a diving duck, but feeds the same as our tame ducks, and is usually found in fresh waters. I have never seen it here in winter. Perhaps a bird wounded in the fall may stay over, but *I* never saw any in winter. They are not plenty even on the Chesapeake waters after the last of November, but go still farther south. A *few* may be shot on the Jersey marshes in winter.

Pintail Duck (*Dafila acuta* Jenyns). "Chiefly along the coast. Winter resident; not abundant." I have never found one of these ducks here in winter. This is also not a duck that dives for its food (and hence cannot feed in deep water). It is usually a very timid duck, and constantly on the watch. On the Delaware, in spring, considerable numbers are shot. By some it is called Spring-tail.

Scaup Duck (*Fulix marila* Baird). "Winter resident." I never saw one of these here in winter. Some are found at that season in Long Island Sound and on the south side of Long Island. A few also winter on the south side of Cape Cod.

Red Head (*Aythya Americana* Bon.). "Winter resident." None to my knowledge winter here. They are a strong diver, and can get their food even in winter, if they will eat the same kind of food that our Coot and Old Squaw live on.

Canvasback (*Aythya vallisneria* Bon.). "Chiefly winter resident; not abundant." Very seldom if ever seen in our waters. A very few have been shot. A few may be found in the waters near New York.

Golden Eye (*Bucephala Americana* Baird). "Common winter resident." Winters from Florida to Maine. There are always large numbers to be seen any calm day in winter from our lower gunning house on Rowley River.

Buffel Head (*Bucephala albeola* Baird). "Abundant winter resident." Stay late in fall and come early in spring; but few, if any, winter here.

Black Duck (*Anas obscura* Gm.). "Resident." There is a *small* variety of this duck that always winters with us and can be procured at any time when the weather is favorable, from September to April. But in early spring the more southern ducks of this species come north and stop a little time here. They are considerably larger than those that winter in our bays. The ducks of this species usually spend the day at sea and return towards evening to the flats and marshes to feed, for they are not a duck that dives for its food, but tilt up as our puddle ducks do when feeding.

All the species here mentioned may have been seen and shot by others, but so far as I have observed only Coots, Eiders, Black Ducks, Velvet Ducks and Scoters winter here. Since most ducks are strong fliers, capable of travelling forty to sixty miles an hour, it would take but about one night's flight for them to reach us from Long Island Sound or even the Delaware waters, and a few warm days may be sufficient to tempt some here, now and then, that are not probably winter residents, a fact that may have been overlooked by some who may have observed certain of them here in winter.

IS HUXLEY'S BATHYBIUS AN ANIMAL?—In the "Microscopical Journal" for October, 1868, is a memoir by Professor Huxley, "On some organisms living at great depths in the North Atlantic Ocean," in which he states that the stickiness of the deep-sea mud is due to "innumerable lumps of a transparent gelatinous substance," each lump consisting of *granules*, *coccoliths*, and *foreign bodies*, embedded in a transparent, colorless, and structureless matrix." The granules form heaps which are sometimes the one-thousandth of an inch or more in diameter. The "granule" is a rounded or oval disc, which is stained yellow by iodine, and is dissolved by acetic acid. "The granule heaps *and* the transparent gelatinous matter in which they are embedded, represent masses of protoplasm." One of the masses of this deep-sea "urschleim," may be regarded as a new form of the simplest animated beings (*Moner*), and Huxley proposes to call it *Bathybius*. The "*Discolithi* and the *Cyatholithi*," some of which resemble the "granules," are said to bear the same relation to the protoplasm of *Bathybius* as the spicula of sponges do to the soft parts of those animals; but it must be borne in mind that the spicula of sponges are embedded in a matrix, which is formed by and contains, beside the spicula, small masses of living or germinal matter. As in other cases, this matrix, with the living matter included, constitutes the "protoplasm" of Mr. Huxley.

Dr. Wallich has, however, arrived at a very different conclusion. In a paper "On the Vital Functions of the Deep-sea Protozoa," published in No. 1 of the "Monthly Microscopical Journal," January, 1869, this observer, who has long been engaged in this and kindred studies, states that the coccoliths and the coccospheres stand in no direct relation to the protoplasm substance referred to by Huxley, under the name of *Bathybius*. The former are derived from their parent coccospheres, which are independent structures altogether. "*Bathybius*," instead of being a widely extending *living* protoplasm which grows at the expense of inorganic elements, is rather to be regarded as a complex mass of slime with many foreign bodies and the *debris* of living organisms which have passed away. Numerous living forms are, however, still found on it.

Dr. Wallich is of opinion that each coccosphere is just as much an independent structure as *Thalassicolla* or *Collosphæra*, and that, as in other cases, "nutrition is effected by a vital act," which enables the organism to extract from the surrounding medium the elements adapted for its nutrition. These are at length converted into its sarcode and shell material. In fact, in these lowest, simplest forms we find evidence of the working of an inherent vital power, and in them nutrition seems to be conducted on the same principle as in the highest and most complex beings. In all cases the process involves, besides physical and chemical changes, purely *vital actions*, which cannot be imitated, and which cannot be explained by physics and chemistry. — LIONEL BEAL, *in Monthly Microscopical Journal.*

REASON AND INSTINCT. — Under this title Sir S. W. Baker, devotes a chapter of his "Eight Year's Wanderings in Ceylon," to symptoms of the reasoning faculty in animals, and narrates a story of his hound "Bluebeard," which was called to mind by your account of the Spider and Mud-wasp on page 391 of the September NATURALIST. To condense a little, the facts were these: "Sir Samuel was hunting in a rolling country divided by jungles into so-called patinas, with a large and deep river flowing through the centre. The pack had disappeared, but after a long time spent in searching for them, Sir Samuel saw from one of the grassy knolls that commanded the patina, an elk swimming out from the jungle, and succeeded with the gray hounds, remaining by him, in running her down shortly after she landed:

> "We were cutting up the elk, when we presently heard old Bluebeard's voice far away in the jungle, and, thinking he might perhaps be running another elk, we ran to a hill which overlooked the river, and kept a bright lookout. We soon discovered that he was true upon the same game, and we watched his plan of hunting, being anxious to see whether he could hunt upon an elk that had kept to water for so long a time.
>
> On his entrance to the patina by the river's bank, he immediately took to water and swam across the stream; here he carefully hunted the edge for several hundred yards down the river, but, finding nothing, he returned to the jungle at the point from which the river flowed. Here he again took to water, and, swimming back to the bank from which he had at first started, he landed and made a vain cast down the hollow. Back he returned after his fruitless search, and once more he took to water. I began to dispair of the possibility of his finding; but the true old hound was now swimming steadily down the stream, crossing and recrossing from either bank, and still pursuing his course down the river. At length he reached the spot where I knew that the elk had landed, and we eagerly watched to see if he would pass the scent, as he was now several yards from the bank. He was nearly abreast of the spot, when he turned sharp in and landed in the exact place; his deep and joyous note rung across the patinas, and away went the gallant old hound in full cry upon the scent, while I could not help shouting, 'Hurrah for old Bluebeard!' In a few minutes he was by the side of the dead elk — a specimen of a true hound, who certainly had exhibited a large share of reason.'" — P.

MALFORMATIONS IN INSECTS. — In the summer of 1868 I observed on several occasions along the south shore of Lake Superior, specimens of the Dragon-fly with a curious malformation, or arrest of development of the wing. In an individual I specially observed, the skin had just been cast, and the wings, not having yet hardened, were quite soft and delicate to the touch. In one of the wings was a lump-like unexpanded portion reducing the size of the limb nearly one-half. The malformation was similar in each of the instances noticed by me, and was so serious as to prevent the flight of the insect, it invariably falling to the ground on being thrown into the air, and being quite unable to raise itself.

A like deformity, with like results, I had previously found to be not uncommon in the Ephemera, which is produced in such countless multitudes in the lake region. The only wonder is that creatures so fragile that almost the touch of a finger injures them, should be brought into existence in such myriads, generally unharmed and perfect.

I saw two examples of a more singular case of malformation in the beautiful pale green Moon-moth (*Actias Luna*). The wing was similarly dwarfed or contracted, a large portion towards the extremity being unexpanded and hardened. The coloring matter and fluids which should have passed down to perfect the development remained above in greenish blisters, protruding the skin of the wing on each side. On breaking this the contents escaped. By pressing those blisters it was possible to project the colored fluid in any direction within the wing; the motions being quite perceptible in the increased brilliancy of color of the parts where the fluid passed. — HENRY GILLMAN, *Detroit*, *Michigan*.

THE COTTON OR ARMY WORM OF THE SOUTH. — The Secretary (of the Entomological Society of London) read a communication respecting the injury done to the cotton crop in Louisiana by the "Army Worm," the larva of *Heliothis armigera* (undoubtedly the *Anomis xylina*, Eds.)

"It stated that the crop was in danger of being entirely eaten up. Some years ago the planters of Louisiana, tempted by the high price of cotton, which was then selling at fifteen pence a pound, began to cultivate cotton, which had been almost abandoned. The sugar-cane became of secondary importance; but the caterpillars arrived, and swept away the hopes of the planters in a few days The noise made by the multitudes of the voracious insects was described as audible at the distance of a mile, and to resemble the crackling of a house on fire. It was thought for a long time that the Army worm only visited Lower Louisiana, but this was an error; in 1788, these insects destroyed two hundred and eighty tons of cotton in the Bahamas; they caused the cultivation of cotton to be given up in many of the West Indian Islands, and the case was almost the same in Egypt; in 1793 this insect visited Georgia, and in 1800 it ravaged South Carolina; four years later they descended on the whole of Louisiana; and in 1825 they ravaged the whole of the Southern States, and it was very difficult even to get seed for the following year. The last general visitation was in 1845. The Army worm appears often in Guiana and other parts of South America."

BLACKBIRDS IN WINTER. — Since the first week in December there have been two, and part of the time three, Rusty Blackbirds constantly about one of my barns. At the same locality a number of Cow Blackbirds were seen last winter and the winter before. They appeared about the middle of November, and left the last of March. Sometimes only three or four were observed, but the highest number seen was nineteen. They were usually very tame, allowing one to approach within eight or ten feet of them. Their only note was a sort of a whistle, uttered while sitting on the top of an apple-tree. The Cow Blackbirds were usually very active, but the Rusty Blackbirds seemed much pinched with cold, and in cold days sat crouched down on their feet. — ROBERT HOWELL, *Nichols*, *Tioga County*, *N. Y.*, Jan. 11, 1870.

HOW THE SCULPTURED TURTLE (*Glyptemys insculpta* Ag.) DEPOSITS HER EGGS. — [The following was given to me by Mr. Frank Gammons, of West Newton. I think it exceedingly interesting, and send it for publication. — C. J. M.]

I was passing through a cornfield in Weston, when I observed a turtle scratching about a hill of corn with one of her forefeet. I paused and watched her movements. She went to half a dozen or more hills, and seemed to try them, but for some reason they did not suit her; finally she came to one where she began to dig in earnest with both forefeet; turning around with her hind-feet acting as a pivot she continued to dig until she had formed a complete circle with the dirt thrown in the centre. She then reversed her position by placing her forefeet in the centre and *supporting herself by these alone*, she with her hind-feet threw out the earth; at the same time turning around until the hole was about six inches deep and about thirteen inches in diameter. She then began to tread it down hard on the bottom. She then came out to the edge and immediately deposited eighteen eggs, with the space of about a minute between each deposit. Sometimes two would come out very nearly together. When she had finished laying she filled the hole by standing on her forefeet as before, and using her hind ones as shovels. When about one inch of earth was thrown in, she would get in and tread it solid. This continued until the hole was filled, when, after smoothing and treading carefully, she crawled away. She measured nine inches wide by twelve long. The soil where she dug was very sandy.

ANECDOTE OF THE SPARROW-HAWK. — An old gentleman once told me the following incident of this bird and I can vouch for its truth: "One day as I was sitting by my window looking over the thriving little town of D———, my attention was turned towards a tame cat which was crossing the street, and bearing a large mouse in her mouth, evidently a treat for her young. But she came well nigh losing it, for a sparrow-hawk came flying over, and seeing the mouse in her mouth, made a sudden swoop and tried to seize it with its talons, but did not succeed. The hawk continued its attempts until they reached the opposite side of the street, when the cat disappeared under the sidewalk, and the hawk flew off into the forest." — T. ALLISON, *DeWitt, Iowa.*

HYBRID FOWLS. — By chance I have had in my possession for two or three years a pair of hybrid fowls, bred from an ordinary dung-hill cock and a guinea hen. Not having had the means of ascertaining whether this is an isolated instance worthy of note, I have addressed these few lines to you, since if the case is worthy of attention I shall be pleased to give you any information concerning them that is in my power. — WARD BACHELOR, *Waverly, Pa.*

[If not too late we should be pleased to have a description of the fowls. Will our readers inform us of any similar cases they may have authentic knowledge of. — EDS.]

THE RUBY-CROWNED KINGLET.—All our standard works on American ornithology describe the Ruby-crowned Kinglet as presenting little or no sexual differences in color, both males and females being said to possess the red crest when mature; those without it being regarded as young or immature birds. I have long questioned whether this is so, but have not of late had an opportunity of arriving at a satisfactory conclusion. Mr. Jillson, writing to me recently about them, says he thinks there is some mistake about them. He says "as far as I know, all naturalists describe the female as having the red on the head. I have taken from three to a dozen every season in May; have dissected most of them but have never found one that had the red that was not a male. I have never taken any without the red until after the former had all, or nearly all, gone north. Those without the red have always proved to be females, and I have never heard one of them sing; but I do not think I ever shot one with the red crown but that I had heard it sing."

What now is the experience of others? Does the female ever have the red crown?—J. A. ALLEN.

THE CROCODILE IN FLORIDA.—Professor Wyman describes, in the "American Journal of Science" for January, the skull of a true Crocodile shot near the mouth of the Miami River, Florida. He remarks that "it has been shown by different paleontologists, especially by Dr. Leidy and Professor Cope, that several species of Crocodilians existed in North America during the Cretaceous and Miocene periods, all of which became extinct. At the present time two living species of true Crocodiles, viz: *C. acutus* and *C. rhombifer*, are known in South America, and both range as far north as Cuba and San Domingo, but we have not been able to find a record of the presence of either of them within the limits of the United States, the Alligator being the only representative of the family to which it belongs." He considers the Florida specimen as the *Crocodilus acutus*.

HOUSE SPARROW (*Passer domesticus*).—The recent introduction of this interesting and useful little foreigner to Boston, with a view to his naturalization and domestication throughout our New England States, appears, I opine, in a fair way of accomplishment, and to call for some notice and gratulation. Although we cannot restrict him to city life, it is certain that he will instinctively discover for himself locations suitable to his peculiar habits and economy. Already he has appeared in some of the suburban towns. In passing a few days since through one of the most frequented streets of this village, I was unexpectedly surprised and gratified in recognizing a merry party of six of our new English friends of both sexes; some picking out the half digested grain among the horse droppings on the road; others, merrily chirping and arranging their toilets on the trees of an adjacent pear orchard, among which a quantity of loose stable litter had been strewn; in such circumstances they appeared to be quite at home and vastly enjoying themselves. He is a social, bold, cunning and gregarious bird; domestic, yet impatient of restraint, and his loquacity and pugnacious disposition are at times quite amusing, and if successfully acclimated, we may expect eventually to find him generally dispersed among our villages and farmsteads, as well as on the crowded streets of our cities, where his presence may be encouraged and his person protected by wise and salutary laws. Some little attention to his natural wants during our usually severe and protracted winters, when the earth is bound by frost or enveloped with snow, in the shape of a few daily handfuls of grain and a snug shelter under the eaves of the barn or outhouse, would, I apprehend, be the extent of his demands on our sympathies, and with his cheerful company and active service during the ensuing season in exterminating those insectivorous pests of the garden and orchard, the curculio, cankerworm (*Et sui generis*), would be found an ample remuneration, and a more plentiful supply of sound apples and luscious plums we might expect as one of many other beneficial results.—J. R. COLLETE, *Somerville, Mass.*

DIMORPHISM IN THE HIGHER WORMS.—The distinguished Swiss naturalist, M. Claparède, in a recent article: "Researches on the Annelids," published in the "Bibliothèque Universelle, Archives des Sciences Physiques et Naturelles," gives an abstract of his studies of the annelids of the Gulf of Naples, in which he confirms the discovery of Malmgren (noticed in the NATURALIST, Vol. iii, p. 494) that Heteronereis is a form of the old genus Nereis. He states that Ehlers, in 1867, in his "Die Borstenwürmer," a work on the higher annelids, has shown the undoubted specific unity of *Nereis cultrifera* and *Heteronereis lobulata*; of *Nereis pelagica*, and *Heteronereis grandifolia*; of *Nereis Dumerilii* and *Heteronereis fucicola*; of *Nereis vexillosa*, and *Heteronereis Middendorfii*; of *Nereis fucata* and *Heteronereis glaucopis*, and another Heteronereis form to *Nereis Agassizii* and *Nereis virens*. He thinks the Nereids are transformed into Heteronereids at the time of sexual maturity. Claparède states, however, that all the species of Nereis do not have a Heteronereid form, as the species of Nereis far exceed in number those of the so-called genus Heteronereis.

He thus concludes: "The fact of animals presenting two sexual forms is not entirely new. The beautiful observations of M. M. Leuckart and Mecznikow, and those of M. Schneider on the *Ascaris nigrovenosa*, have made us acquainted with analogous cases among the Nematodes, where one of the generations, it is true, is hermaphrodite, and the other presents separate sexes. But, among the Acalephs, certain Geryonidæ (*Carmarina*), according to M. Haeckel, and among the Nematodes, the *Leptodera appendiculata*, according to M. Claus, present two sexual forms, for each of which '*gonochorisme*' is the rule. The history of the Axolotls, which M. Dumeril has acquainted us with, offers certain points of analogy with that of *Nereis Dumerilii*."

The bearing of these remarkable discoveries, as well as those of the dimorphic forms of insects, on Darwinism, and especially Professor Cope's theory of the origin of genera, is startling, and strongly confirmatory of the latter phase of the theory of evolution.

Disposal of the Placenta. — Noticing in the Naturalist passing allusions to this subject, I desire to add my testimony in the case. I have closely observed cats and dogs in the act of parturition, and am in position to affirm that these animals devour the afterbirth. It would rationally be inferred from the fact that a cat's bed, no matter how numerous her progeny, shows nothing but a few blood stains, and those made by the liquor amnii. The lying-in of a bitch that I watched through the whole process, and had under observation for some days afterward, furnished some other interesting particulars. The uterus expelled its contents at short intervals, one fœtus at a time, each emerging entire, without rupture of the membranes, and so of course, accompanied by the secundines intact. The mother at once seized the fluctuating mass with her teeth, tore it open, spilt the water, and shook out the puppy. She then hastily took the placenta and membranes in her mouth, chewing and swallowing convulsively until the whole mass was in her throat, the funis meanwhile hanging out of her mouth with the puppy still attached, its abdomen touching her muzzle. At this point she began to bite the cord, about an inch from the umbilicus, and chewed it off, using not the incisor, but the canine teeth. A few drops of blood followed the severing of the cord; the puppy was left to its own resources, while the mother rested, apparently asleep, after her pain and fatigue. The process was substantially repeated in each instance. In this accouchment there were nine puppies; consequently some idea of the amount of flesh taken into the mother's stomach may be formed.

Here are two points for consideration. In the mode of severing the cord we have a fine example of the instinct, or perhaps rather necessity, that effects laceration, instead of clean cutting, and thus obviates hemorrhage; for lacerated vessels do not bleed. It raises a question now extensively discussed by obstetricians; and, indeed, one might ask with propriety, was Cain's navel-string tied? Secondly, it is probable that the secundines are not wasted, but on the contrary furnish sustenance to the mother for a time. In the case to which I have special reference the mother did not leave her bed for forty-eight hours, nor could she be induced to take food brought to her during that time. The mass was certainly digested, and its nourishment assimilated, as was evident from the appearance of what was voided on the third day. — Elliott Coues.

Summer Red Bird.—I have just learned, through Mr. Winfield Stearns, of Amherst (in a letter to the Naturalist), that a specimen of the Summer Red Bird (*Pyranga æstiva*), was shot in August, 1867, in that town, this making the third instance now known of the capture of this southern bird in this state.

Much is doubtless still to be learned respecting our Massachusetts birds, especially in regard to the frequency of occurrence of many of the rarer species. It is to be hoped that those having facts of interest respecting such species will see fit to report them in the Naturalist. — J. A. Allen.

THE OSPREY (*Pandion haliaëtus*).—Mr. Allen, on page 569 of Vol. iii of the NATURALIST, refers to the desertion of the seaboard of Massachusetts by this bird. I will relate an incident which came under my observation some time since showing that the Osprey is still, or recently, a very near neighbor and affording some expectation of his return to our coasts where conditions suitable to his peculiar habits still exist.

Walking from Bristol to Warren, R. I., in May, 1868, I noticed with a pleasant surprise an eyrie of a pair of these birds on the denuded top of a stunted oak or butternut, at an elevation, judging from my distance, of less than twenty feet from the ground, located near a solitary farmstead, about half a mile distant on the right of the turnpike, and with but few other trees of dwarfish growth scattered at intervals around. The female bird appeared to be busily engaged in collecting material and repairing her nest; the male meanwhile sedulously pursuing his piscatory avocation over the adjacent bay. I presume I could not have been mistaken in identifying the species on this occasion, having had some years previous a fair opportunity of studying the habits of these birds on the estate of my friend, Dr. Parmley, near Shrewsbury Inlet, New Jersey.—J. R. COLLETE, *Somerville, Mass.*

THE GREAT AUK.—The statement (Amer. Nat., iii, p. 539) that "the Great Auk or Gare-fowl, fortunately for itself did not live long enough to receive more than one scientific name" is incorrect. I give several (Proceedings of the Academy of Natural Sciences, Phila., 1866), and believe others might be found. The tips of the wings are not white, as stated (l. c.), the primaries not being thus marked. I should judge "less than thirty specimens of the egg . . . . now preserved" (op. cit. p. 550), to be an underestimate. Mr. Robert Champley (Annals Mag. Nat. Hist., 1864, p. 235—fide Hartl. Jahrest. 1864, p. 27), records fifty-three. Those who hesitate to credit comparatively southern localities for the species should consult the paper of one of the highest authorities upon the subject, Professor A. Newton. (Ibis, Oct., 1862). Some of Nuttall's observations are more poetical than reliable. Lastly, we have no proof that the Great Auk is extinct; the negative evidence in the case is not so weighty that Professor Newton could not say with propriety "I think there is yet a chance of the Great Auk still existing" (ibid., p. 23).—ELLIOTT COUES.

A RARE VISITOR.—A specimen of Pomarine Jager (*Lestris Pomarina*), was obtained by Mr. Vincent Barnard on the fourth of July last, on the Susquehanna River at Peach Bottom, Lancaster County, Penn. An adult bird of the same species was procured, during the summer of 1840, at Harrisburg on the same river by Professor Baird. When it is remembered that adults of this species seldom come within the limits of the United States, even in the severest winters, young birds only making their appearance along the New England Coast, their occurrence in midsummer may well be considered as quite remarkable. ⁂

THE COW BIRD. — In the second number of "Nature," Professor Newton has an uncommonly interesting and suggestive article on the variation observed in Cuckoos' eggs, which seems to depend upon, or to be in some way connected with the characters of the eggs of the birds selected by the parasite as the foster-parents of its offspring. Has anything of the sort been determined regarding the eggs of the Cow-bird? Do they vary, in the first place, to anything like the extent that the Cuckoo's do; and secondly, do they ever tend unmistakably to assimilate in marking to the eggs of birds usually selected by the Cow-bird as its dupes? Or, again are the birds so chosen, those whose eggs have any special resemblance to a Cow-bird's? It is not always so, I know; but is it so sometimes, frequently, or usually? The subject is worthy of the attention of our ornithologists, from whom it would be well to hear. — ELLIOTT COUES.

OCCURRENCE OF THE BROWN PELICAN IN MASSACHUSETTS. — Since writing "Notes on Some of the Rarer Birds of Massachusetts," I have received, through the kindness of Mr. Martin, further information respecting the Pelicans mentioned in the February number of the NATURALIST. The gentleman who saw the flock referred to there, and who fired at them, writes that the number was five instead of thirteen, as at first erroneously reported, and that they were the *smaller brown species* (*Pelecanus fuscus*) instead of White Pelicans. They came in from the sea, apparently much fatigued, and alighted on the beach near the Sankaty Head lighthouse, where they remained till driven away by being fired at. A White Pelican seems, however, to have been recently killed on Brant Point, Nantucket, as previously stated. The Brown Pelican I have not known to occur previously so far north. — J. A. ALLEN.

THE CHIPMUNK. — One of our chipmunks was noticed a few days ago busily nibbling at a snake that had been recently killed. He could hardly be driven away, and soon returned to his feast when his tormentors had withdrawn a short distance. Does the *Tamias striatus* in other regions possess such carnivorous propensities? — A. J. COOK, *Lansing*, *Mich.*

ALBINO RODENTS. — In the back yard of a small restaurant in this city is kept a beautiful albino squirrel, of the black and gray species (*Sciurus Carolinensis* Gm.). It was taken in Central Wisconsin, where another was killed at the same time. There is an albino rat at a bird-store in town. — W. J. BEAL.

CONCHOLOGICAL SECTION OF THE ACADEMY OF NATURAL SCIENCES, PHILADELPHIA, *Nov.* 4th, 1869. — Mr. Tryon called the attention of the members to specimens of *Amnicola grana* Say, from Carter County. Missouri, presented this evening. This very minute species was apparently unknown to Professor Haldeman, who in his monograph of the genus, merely quotes Say's original description and citation of locality and does not figure it. The species was for years considered a doubtful one, until Mr. Tryon had discovered it, six or eight years ago, existing in considerable numbers in ditches in the southern part of the city of Philadelphia.

Mr. T. distributed specimens to many of the American Conchologists, most of whom informed him that it was new to their collections. The donation this evening (Nov. 4) indicates that the species has a large area of distribution, and has probably been overlooked by collectors under the supposition that it was merely the young of some larger species.

At the meeting held December 2d, Mr. W. L. Mactier called attention to a specimen of *Dolium melanostoma* Jay, presented by him this evening. The locality of this shell still remains a mystery, although it has been recently assigned to Japan. Mr. M. also presented a nearly perfect specimen of *Voluta Junonia* and remarked that it was the rarest of American *Volutidæ*, and was found in the Gulf of Mexico.

Mr. Tryon referring to his remarks made at a former meeting in refutation of Dr. Gray's opinion that *Crepidula plana* Say, is identical with *C. fornicata* Linn., stated that additional evidence of their non-identity had recently been presented by Mr. George H. Perkins, who in a recent paper states "that the ovi-capsules of *plana* are broader, shorter, and thinner than those of *fornicata*, and the ova are differently situated."

GEOLOGY.

Further Evidence of the Affinity between the Dinosaurian Reptiles and Birds. — Professor Huxley reviewed the evidence already cited by himself and others (especially Prof. E. D. Cope), in favor of the ornithic affinities presented by the Dinosauria; and discusses at length the recently ascertained facts which bear upon this question, some of the most important of which are derived from the species described by him in the preceding paper under the name of *Hypsilophodon Foxii*. He summed up his paper by a comparison of the different elements of the pelvic arch and hinder limb in the ordinary reptiles, the Dinosauria and Birds, and maintained that the structure of the pelvic bones (especially the form and arrangement of the ischium and pubis), the relation between the distal ends of the tibia and the astragalus (which is perfectly ornithic), and the strong cnemial crest of the tibia and the direction of its twist, furnishes additional and important evidence of the affinities between the Dinosauria and Birds.

Sir Roderick Murchison, who had taken the chair, enquired as to the habits of the Hypsilophodon. Mr. Hulke mentioned that Mr. Fox had several blocks containing remains of a large portion of the Hypsilophodon, all procured from a thin band of sandstone near Cowleaze Chine. On one the pelvis is almost entire, as well as the right femur, the tibia, which is longer than the femur, four long metatarsal bones, and an astragalus. All the long bones are hollow. Portions of at least eight individuals have been found in the same bed. Mr. Seeley doubted whether these animals should be called reptiles at all, as they seemed to him to form a group distinct alike from reptiles, birds, and mammals, but occu-